DRAWINGS

Another Replacement Sheet of Figure 1 has been included, wherein the following text has been added:

"I_2, and optionally an N_2 or He carrier."

REMARKS

Claims 1-11, 13-16, and 18-28 are pending. Reconsideration and allowance are respectfully requested in light of the following remarks.

Rejection under 35 U.S.C. §112

Claims 1-11, 13-16, and 18-28 stand rejected under 35 U.S.C. §112, second paragraph. Insofar as they may be applied against the Claims, these rejections have been overcome.

With respect to the term "laser cavity" in Claim 1, Applicant respectfully points the Examiner's attention to Figure 1. Reference numeral 18 is defined as being a "laser cavity" (see page 15, line 15, of the originally filed Application). Clearly, Applicant is reciting the "laser cavity" as defined in the originally filed Application. Therefore, Applicant respectfully asserts that the recitation is clear.

With respect to the term "iodine injection strut" in Claim 1, the "iodine injection strut" clearly is a strut for injecting iodine. Moreover, Applicant amended Claim 23 in the previous response at the behest of the Examiner. Applicant has amended Claim 23 back to its original form; therefore, Applicant has made it clear that the "iodine injection strut" is a strut for injecting iodine.

Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. §112, second paragraph, be withdrawn. Applicant also respectfully requests that the rejections of dependent Claims 2-11, 13-16, and 18-28 also be withdrawn.

Rejection under 35 U.S.C. §102 and §103

Claims 1-4, 6, 8, 18, 20, and 27 stand rejected under 35 U.S.C. §102(b) in view of U.S. Patent No. 2,625,008 by Crook ("Crook"). Claims 1, 2, 6, 8, 10, 18, 20, 21, 26, and 27 stand

rejected under 35 U.S.C. §102(e) in view of U.S. Patent No. 6,315,221 by Goenka et al. ("Goenka"). Claims 1, 2, 6, 8, 10, 11, 12, 20, and 21 stand rejected under 35 U.S.C. §102(b) in view of U.S. Patent No. 2,613,999 by Sher et al. ("Sher"). Claims 1, 2, 6, 8, 27, and 28 stand rejected under 35 U.S.C. §102(b) in view of U.S. Patent No. 1,608,998 by Riiho ("Riiho"). Claims 1, 2, 6, 8, 10, 14, 18, 20, and 23 stand rejected under 35 U.S.C. §102(b) in view of U.S. Patent No. 6,072,820 by Dickerson ("Dickerson"). Claims 1, 2, 6, 8, 10, 11, 18, 20, and 28 stand rejected under 35 U.S.C. §102(b) in view of U.S. Patent No. 5,023,883 by Jacobs et al. ("Jacobs"). Claims 7, 9, 15-16, 19, and 22 stand rejected under 35 U.S.C. §103(a) in view of Goenka. Claims 5 and 23-25 stand rejected under 35 U.S.C. §103(a) in view of Sher. Insofar as they may be applied against the Claims, these rejections have been respectfully traversed.

With respect to the recitation of a Minimum Length Nozzle (MLN) in Claim 1, Applicant respectfully points the Examiner's attention to page 5, line 4, to page 6, line 11 of the originally filed Application. Applicant has reproduced the relevant section below for the Examiner's convenience:

> The benefits of the preferred SOG are compromised by using it with current nozzle and iodine injection technology. A new nozzle approach; namely, a minimum length nozzle is required. By definition, a MLN is an inviscid flow design approach for a divergent nozzle whose length between the throat and the exit plane is a minimum and where the flow in the exit plane is uniform and supersonic. This type of nozzle can be two-dimensional or axisymmetric. Here, only the two-dimensional version is of interest. There are two sub-types; a nozzle with a straight sonic line or with a curved sonic line, where the curved line is a circular arc.
>
> All MLN versions have a wall contour with a sharp corner at the throat. For the same specific heat ratio, throat dimension, and nozzle exit Mach number, MLNs are substantially shorter and possess a much larger favorable pressure gradient, just downstream of the throat, then a comparable conventional nozzle.
>
> The length of a two-dimensional MLN with a straight sonic line is known to be shorter than a curved sonic line MLN. The difference, however, is rather small. Moreover, the curved sonic line version has several advantages over its straight sonic line counterpart. As is known, the sonic line in a conventional nozzle is roughly parabolic. The curved sonic line approximation is thus a more realistic approach than that of a straight sonic line. As

> discussed in T.L. Ho and G. Emanuel, "Design of a Nozzle Contraction for Uniform Sonic Throat Flow," AIAA J. 38, 720-723 (2000), it is quite difficult to design a converging nozzle section that ends with a straight sonic line. A lengthy nozzle section, upstream of the sonic line, is required. The short converging nozzle section, used here, is more compatible with a curved sonic line. Another factor is that a two-dimensional curved sonic line MLN possesses an exact analytical solution; it is the only MLN configuration where this is the case. Full advantage is taken of this feature in the subsequent presentation.

Clearly, from the above reproduced section, "minimum length nozzle" is a term of art and not a broad recitation of length. Additionally, even if the Examiner does not accept that a "minimum length nozzle" is a term of art, according to MPEP §2111.01(III), an applicant is entitled to be his/her own lexicographer. Therefore, the Examiner should interpret an MLN to be "an inviscid flow design approach for a divergent nozzle whose length between the throat and the exit plane is a minimum and where the flow in the exit plane is uniform and supersonic." Therefore, rejected independent Claim 1 recites one of the distinguishing characteristics of the present invention, namely, "a symmetric two dimensional minimum length nozzle having a curved sonic line, a throat, and an exit plane[,] and at least one iodine injection strut that is located downstream of the throat, wherein the nozzle feeds a laser cavity."

Neither Crook, Goenka, Sher, nor Riiho teach, disclose, or suggest an iodine injection strut in combination with a minimum length nozzle for use in a laser. Crook discloses a variable C-D nozzle for use in a propulsive thrust engine (i.e. turbojet or turbofan), and not an MLN. Goenka discloses a nozzle having exit ports for material such as paint, and not an MLN. Sher discloses an atomizing nozzle which evenly disperses fluid into a flow and not an MLN. Riiho discloses a fog machine that uses a nozzle, but does not show an MLN. None of these references, singularly or in combination, disclose the use of an MLN, let alone an MLN for use with a laser that includes an iodine injection strut. Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. §102(e) or §102(b) in view of Crook, Goenka, Sher, or Riiho be withdrawn.

With respect to Dickerson, Dickerson does disclose a COIL. However, the Examiner states that reference numeral 10 of Dickerson is "a symmetric two dimensional minimum length nozzle." As the Applicant stated above, an MLN is a term of art, where specifically, the "flow in the exit plane is uniform and supersonic." Dickerson's only use of the word "uniform" is on column 3, line 25, which describes that the distribution of chlorine is uniform, not the flow. Therefore, Dickerson clearly does not show an MLN for use with a laser that includes an iodine injection strut. Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. §102(b) in view of Dickerson be withdrawn.

With respect to Jacobs, Jacobs discloses a combustion chamber (4) and a laser cavity (10). Interposed between the combustion chamber (4) and laser cavity (10) are a number of nozzle blades (5), which (according to the Examiner) have an outer surface that form an MLN with the inner surface of the cavity (4). If this is correct, the nozzle blades (5) are not struts and are not located downstream of the throat, but instead form the throat. Clearly, the nozzle blades (5) cannot form the throat and form a strut that is located downstream of the throat. When compared to Claim 1, which states that "at least one iodine injection strut...is located downstream of the throat," Jacobs does not and cannot disclose all of the elements of Claim 1. Accordingly, Applicant respectfully requests that the rejections of Claim 1 under 35 U.S.C. §102(b) in view of Jacobs be withdrawn.

Claims 2-11, 13-16, and 18-28 depend on and further limit Claim 1. Hence, for at least the aforementioned reasons, these Claims should be deemed to be in condition for allowance. Applicant respectfully requests that the rejections of dependent Claims 2-11, 13-16, and 18-28 also be withdrawn.

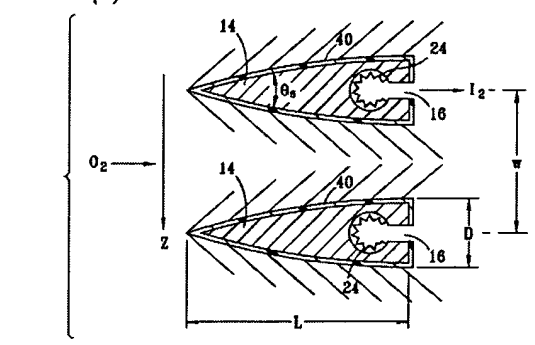
Restriction Requirement and Drawings

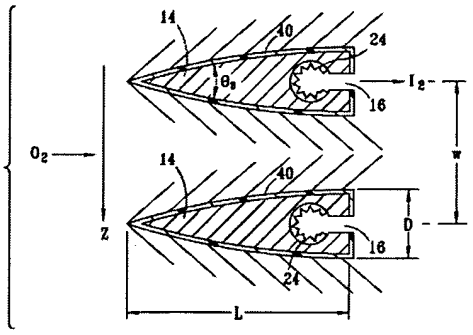
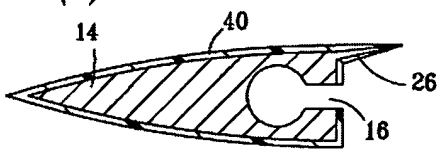
Figures 4 and 5 had been previously withdrawn from reconsideration. However, Applicant seeks to reintroduce Figures 4 and 5. MPEP §809.02(c) reads as follows:

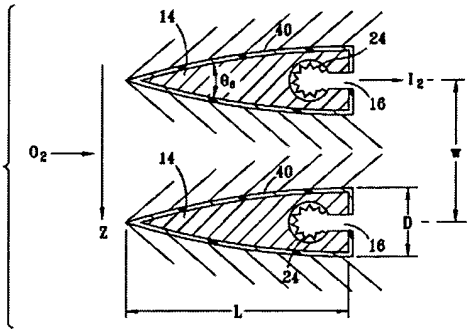
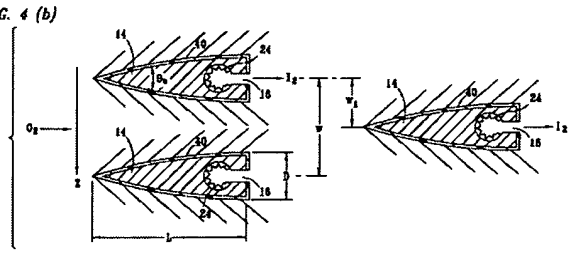
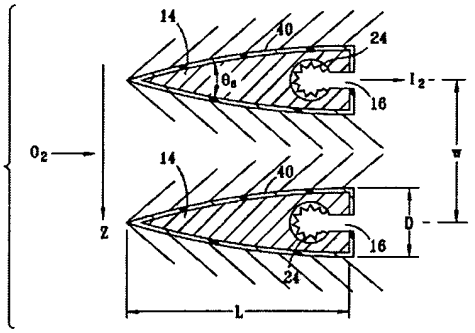
> "[w]hen a generic claim is subsequently found to be allowable, and not more than a reasonable number of additional species are claimed, treatment shall be as follows... [w]hen all claims to each of the additional species are embraced by an allowable generic claim as provided by 37 CFR 1.141, applicant must be advised of the allowable generic claim and that claims drawn to the nonelected species are no longer withdrawn since they are fully embraced by the allowed generic claim."

Applicant now believes that Claim 1 is generic, where all claims to each of the species are embraced by Claim 1, and Applicant respectfully asserts that the three species at least constitute a reasonable number of species. Additionally, for at least the reasons mentioned above, Claim 1 is believed to also be in condition for allowance. Therefore, Applicant respectfully requests that Figures 4 and 5 as applied to any of Claims 1-28 be considered, where these Claims should be deemed to be in condition for allowance.

Because Figures 4 and 5 have been reintroduced, items 1-5, 7-10, and 13-15 are depicted in Figs. 4 and 5. Applicant has provided the table below explicitly showing each of these features in the drawings for claims that have not been cancelled.

Item No.	Item	Drawing	Specification
1	sharp wedge with an angle less than 45°	*FIG. 4 (a)* 	"The angle θ_s preferably ranges from 5° to 45°, and most preferably is around 20° or less." Pg 27, lns. 7-8
2	sharp wedge with an angle less than 20°		
3	struts has a coating		"The struts have a coating 40 and have

			heater elements 24. Coating 40 may be Teflon, nylon, or other plastic material." Pg. 27, lns 8-10
4	orifice is circular	Claims have been cancelled.	
5	orifice is oval		
7	the diameter of an injected iodine plume is equal to or less than the width of the strut		
8	at least two struts	FIG. 4 (a)  	"FIGURE 4(a) shows two struts, in cross-sectional top view. The iodine flows through feed duct 20 and exits through orifice 16. The oxygen gas flow direction is shown as well as the optical direction, denoted as z in FIGURE 4(a). The spacing between adjacent struts is w." Pg. 27, lns. 1-5
9	at least one fin	FIG. 5 (a)  	"FIGURE 5 shows the possibility of using one or two small fins 26 or of using oblong orifices 16. The purpose of using fins or oblong orifices is to assist in the rapid formation of an iodine layer near the base of each strut if

			necessary or desired." Pg. 27, lns 10-13
10	sharp ogive	Claim has been cancelled	
13	two struts	FIG. 4 (a) 	"FIGURE 4(a) shows two struts, in cross-sectional top view. The iodine flows through feed duct 20 and exits through orifice 16. The oxygen gas flow direction is shown as well as the optical direction, denoted as z in FIGURE 4(a). The spacing between adjacent struts is w." Pg. 27, lns. 1-5
14	two struts are staggered	FIG. 4 (b) 	"FIGURES 4(b) and 4(c) show cross sectional top views of alternate embodiments where the struts 14 are staggered." Pg. 36, lns. 1-2
15	heating element	FIG. 4 (a) 	"The struts have a coating 40 and have heater elements 24." Pg. 35, lns. 20-21

Therefore, Applicant respectfully requests that the objections to the drawings for items 1-5, 7-10, and 13-15 be withdrawn.

Regarding items 6, 11, and 12, Applicant *previously* amended Figure 1 to include the missing features. However, Applicant has, again, amended Figure 1 to include these features in case previous amendments to Figure 1 have not been entered. Accordingly, Applicant respectfully requests that the objections to the drawings for items 6, 11, and 12 be withdrawn.

Conclusion

Applicant does not believe that any fees are due; however, in the event that any fees are due, the Commissioner is hereby authorized to charge any required fees due (other than issue fees), and to credit any overpayment made, in connection with the filing of this paper, to Deposit Account 50-2180 of Storm LLP.

Should the Examiner require any further clarification to place this Application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

Dated: Nov. 8, 2006

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